Paperless Billing for Small and Medium Scale Businesses

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Abstract— Paperless billing system offers organizations and businesses several benefits including increased work competence, productivity, and information security. However, there are various organizations, particularly small-scale businesses, which are still functioning under a paper centred milieu. For those businesses, paperless system results in could mean heavily reduced work and overall cost cutting. This document comprises of all the related work (advanced and current work related to this field) and explains the working of the process.

Keywords—digitization, digital invoice, e-Businesses, Paperless billing, web application.

I. INTRODUCTION

Paper-based billing involves the maintenance of physical documents, photocopying them, archiving them, and retrieving them from previously documented folders. Paper-based processes are not proficient, it requires ample memory space, and encounter a lot of security threats. Businesses that use papered billing also face security risks due to the loss, damage or misfiling of papered documents. With the growing phase of technology, most of the businesses and organizations have put their best foot forward towards electronic filing and billing to save space and avoid security threats.

Retrieval of documents stored digitally is easy and fast. The proposed prototype of billing system will be paper free for any kind of use to assure that not even a single dice of paper will be used in the whole procedure of billing. The era of computing and digitization has emphasis on how to make things easy with the help of computers. The proposed prototype of web application focuses exactly on the same point.

In the present day, most of the transactions of billing like ticket booking, shopping, mobilecharges etc are all done online. However the local retailers are still doing the same old work of papered billing. Hence, keeping in mind the extended work load of local retailers, we have introduced a prototypical solution to the billing system where with the help of an easy working web application, storage and retrieval of transactions, maintenance customer records can be done. The agenda of this paper is to identify the literature that explains the motive of the paper-free billing environment by focusing on best practices in implementation of a paperless system.

Small scale businesses are targeted in the initial phase of our implantation. Furthermore, as our initiative is accepted we are to be focusing on expansion on a greater scale.

II. LITERATURE SURVEY

Paper-based billing procedure includes the handling of papered documents, photocopying them, archiving them, and retrieving the physical documents from a file. Paper based processes are inefficient, cost valuable office space, and pose security threat. The models provided for e-billing (totally paperless) are for the sake of online web applications viz. Bookmyshow, Ola, and Uber cab services and IRCTC (e-ticket reservation) are restricted for businesses that provide online services. This should not be a limited environment when it comes to paperless billing.

The web application used by the organisations mentioned above cannot be possibly implemented in local areas for small scale businesses. Although conceptually they might resemble with our concept, but when it comes to managing the shop with introducing e-billing to it those web application won’t be of any use. We’d have to reconsider all the possible alterations and additions by keeping local ventures in mind.

When it comes to local ventures the issue is not only about managing the shop overall but also maintaining the whole record of bill, taxes etc. For doing this we have to maintain a directory which will, recollect data as required. To overcome this, this web application has been introduced on the local scale. The basic motto is to
provide this facility of digitization in the hands of medium scale businesses. By using this web application the owner of the business can manage his/her business and keep track of all the activities and also go through the whole billing procedure without using a single dime of paper.

Looking at the 2010 HDS, approximately merely 44 percent of First-Class emails received by households were bills. From 2002–2004, the number of bills sent over mail were relatively static. We can then see the increment in 2005 and 2006, followed by a fall that began in 2007 and continued till date.

Taking a step further, e-billing is proposing an automatic e-bill introductory period. Because the e-bill experience is unique for each consumer, we believe that forcing the customer to try and use the e-bill shall provide the time necessary for the customer to experience paperless bill, get used to it and, finally eliminate the papered billing process.

III. METHODOLOGY

As per discussed above, the design which everybody is using for bill generation, is an integrated web application which costs more and is not even user friendly.

To overcome this, this paper introduces a paperless billing system. This method does not need any integration with any kind of hardware. This will generate a receipt in the form of an image. This image will be forwarded to the customer via e-mail.

Study reveals that the number of Smartphone users have hiked up by a great percentage in last 4-5 years. Thus people have an access to internet services on just one touch.

E-MAIL:

If the concerned individual has an email id, the owner can mail the bill link to the email-id of customer when the customer open that link inside there is copy of bill, which will be only for viewing purpose. Since there is not any issue of storage space online, the bill can be stored there on permanent basis. So even if the particular individual deletes the e-mail containing the bill, he/she can always ask for a copy to the vendor.

Thus, only the customer’s name, phone number and email-id will be the information that is maintained with the bill, stored in the customer’s database.

IV. ADVANTAGES

E-receipts/paperless bills are generally considered as a way of saving paper. It’s convenient and user friendly, i.e, the user can easily claim warranty/guarantee for the purchase, apply for return policy of product and even use the bill for IT returns.

E-receipts provide retailers with detailed insight into consumer shopping behaviour, which leads to more besieged mailers for advertising and promotions over email.

Implementation:
The following is the data flow diagram which illustrates the flow of working of our web application:

A brief explanation about the working of proposed system via different modules is stated in following points:

1. Admin login:

Considering data security in mind the web application has an administration login page. This page will appear as soon as anyone attempts to access the web application. This page contains 2 fields-

a) Username
b) Password.

By providing administration login page, data security is also ensured. No other person can peep into the data. The username and the password are provided at the time of configuration of the web application into the retailer’s machine. User will not be able to change the username or password on his own. Any discomfort caused during login shall be solved by web application developers.

2. Home:

Once the administrative authority has logged in, the user is directed to home page. The home page contains “generate bill” option. User is able to generate a new bill whenever any new transaction is to be made. In the bill, user manually enters the products, quantity of each product and its rate. The total payable amount is calculated automatically. To keep an appropriate record of transactions, a bill number is assigned to every bill along with date. A separate database for all the bills is created and maintained, where a copy of bill will be stored. The bill format contains a “customer name” field - which stores the customer information and it is retrieved from the database at the time of bill generation.
3. Bill history:
This platform provides bill section. In this section vendor can see the current bills and previous bills in the form of list also. In case vendor wants to search a previous bill then he can easily search a bill on “bill search bar”. This search bar will be accepting the names in order to search the bills of a particular customer. In case, a customer cannot be able to access the bill then customer can tell his or her name to the vendor who will in turn provide a copy of the bill on the customer’s email id.

4. Our Customer:
In this section vendor can store list of customer data. Whereas, this section contain customer’s name, email id and mobile number which stores the list of customer information in the respective database. Whenever any customer visits the shop again, there will not be any need to re-enter the data. It will be a onetime entry only-at first visit. Later on the owner will simply search the customer mobile number in the database and all the previously stored details will appear automatically, thus making it convenient.

5. Customer info:
In this section vendor can store customer’s data. Whereas this section contain customer’s name, email id, mobile number. The customer data is stored in the customer’s information database. For future shopping, if the customer has previously visited the shop, he/she does not have to give the information again as the information is automatically retrieved from the customer’s information database.

V. RESULT ANALYSIS
Various kinds of testing were done to check the functionality of the application.

• Unit Testing:
Unit testing focuses on validation effort of the smallest unit of web application design. Individually, each modules and sub-modules were tested for errors and all the control paths were tried to uncover errors within the connecting methods of every module. All the modules and sub-modules in our web application were functioning correctly as expected.

• Integration Testing:
Integration testing is a systematic technique for the construction of the whole structure of the modules by combining the unit tested modules to get the final code without errors. All the errors that occurred after the connectivity of the modules were removed and the modules were adjusted successfully. The integrated module is working efficiently.

In our web application the login page and the main page were connected and are working properly.

• Regression Testing:
Each time a new element is added as part of integration testing, the web application changes. In respect to an integration test strategy, regression testing is the re-execution of some parts of tests that have already been driven to confirm that fluctuations haven’t proliferated inadvertent side effects relatively.

• Black-box testing:
Black-box testing permits the web application engineer to descend pairs of input conditions that will completely exercise every practical requirement for the program. Black-box testing will find these errors in the following categories: (i) incorrect or missing functions, (ii) interface errors, (iii) errors occurring in data structures/external database access, (iv) behaviour and/or performance errors, and (v) initialization and termination errors.

VI. FUTURE SCOPE:
In future, the vendor may be provided with two variants of bill forwarding options:

i. Bill forwarding via Whatsapp:
Whatsapp is the most commonly used messenger. Our web application may provide the users with an option to remit their respective bill in the form of pdf over whatsapp.

i. Bill forwarding via Text message:
Sending a simple text message with bill details (a mini bill in itself) may also be included in the web application.

REFERENCES


